these factors, the Commission finds that the avoided cost determinations for each of the four accounts, as presented by Commission Staff, with the exception of the nonrecurring costs discussed above, at paragraph 356, are appropriate.[40] Exhs. C-148 and C-149.

### b. Number Service and Call Completion

372. U S WEST and GTE contend that, for the most part, these expenses are related to directory assistance and operator services, and as such should not be treated as avoidable. To the extent these costs are not related to operator services or directory assistance, they are not avoidable. U S WEST Brief at 81-82; GTE Brief at 88-89.

373. AT&T/MCI claim they want to provide their own operator services including directory assistance and, thus, these costs should be treated as 100% avoided. AT&T/MCI Brief at 72.

374. Public Counsel argues for two separate discounts, one for resellers who choose not to provide OS/DA on their own, and one for resellers who provide their own OS/DA. In the case of resellers who would not self-provide OS/DA services, Public Counsel would not treat these accounts as avoidable. In the second scenario, resellers who provide their own OS/DA, Public Counsel proposes to treat that portion of call completion which is not recovered through OS/DA charges as avoidable. Public Counsel Brief at 36.

375. Commission Staff recommends that OS/DA services have a separate discount. For the general wholesale discount, Staff proposes that call competition costs not covered by OS/DA charges should be treated as avoidable. This Staff adjustment was applied only to U S WEST, since Commission Staff is of the opinion that GTE's OS/DA revenues cover costs. Exh. 147 at 7-8.

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[40] Staff proposes the following values:

| *Account* | *U S WEST* | *GTE* |
|---|---|---|
| Product Management | 43.28% | 28.7% |
| Sales | 100% | 71.62% |
| Product Advertising | 100% | 98.29% |
| Customer Service | 71.92% | 51.15% |

376. This issue is discussed, *supra*, at paragraph 349 of this Order. The Commission will not include OS/DA charges as part of the general discount, and none of the call completion or number service account costs will be treated as avoided for this purpose. The determination of the discount rate for OS/DA charges is a separate issue that will be addressed in future proceedings.

**c. Testing and Plant Administration**

377. AT&T argues that the FCC requires the ILECs to establish electronic interfaces. This would allow the reseller to perform certain ordering and provisioning functions for its customers without relying on the ILEC. Based upon a study of its own costs, AT&T states that it conservatively estimates the avoided testing costs at 20%. Exh. 167 at 16.

378. U S WEST contends that it will not be able to avoid any of these costs, as it would be obligated to provide these services. The Company states that AT&T and other carriers have insisted upon the same level of service that U S WEST provides its own end-use customers. GTE joins in the arguments of U S WEST. U S WEST Brief at 83; GTE Brief at 91.

379. The Commission agrees with U S WEST and GTE. First, there is no evidence of record concerning costs that would be avoided by the incumbent. While AT&T witness Dodds testifies to a study done using AT&T's costs, and the costs related to its customers, this study is not applicable to U S WEST. Second, U S WEST point out, the ILEC is obligated to provide the service, even though the reseller may chose to provide some of the service on its own.

**d. Costs Related to Wholesale Products**

380. As discussed earlier, the Commission believes that wholesale revenues, including access revenues, should be excluded from the study. Furthermore, the costs allocated to such revenues should not be treated as avoided for the purpose of these studies. See, ¶¶324, 333, *supra*.

**2. Calculation of Indirect Avoided Costs**

381. All parties, except Sprint, agree that indirect costs should be treated as part of the total avoided costs. The FCC found that indirect costs are assumed to be avoided in proportion to the avoided direct costs. Sprint Brief at 78-79.

382. The Commission concurs with the FCC's determination that for purposes of calculating the wholesale discount, it is reasonable to assume that indirect expenses will be avoided in proportion to the avoided direct expenses.

383. While the parties agree on the inclusion of indirect costs, they disagree about the level of indirect costs. Factors that impact the level of indirect avoided costs include: the direct avoidable cost calculation; the formula used to determine the ratio of indirect costs; and the inclusion of capital costs in the formula.

### 3. Direct Avoided Cost Calculation

384. We have already discussed this portion of the formula and will not repeat that discussion here. See, ¶¶ 365-380, *supra*.

### 4. Formula for Determining the Ratio of Avoidable Indirect Costs

385. Each of the parties, except Sprint, uses a ratio of avoidable direct cost to a denominator to determine the ratio of indirect avoidable costs. The parties differ on their choice of the denominator. GTE proposes to utilize total operating expense as the denominator, claiming this is consistent with the method used by the FCC. GTE Brief at 91-92.

386. No other party contests the proposition that the FCC utilizes the model advocated by GTE. However, parties have noted an inconsistency in the calculation used by the FCC and the language of its order, which states that indirect expenses are "presumed to be avoided in proportion to the avoided direct expenses." Public Counsel Brief at 44.

387. Sprint contends that indirect expense will not be affected by the shift to wholesale expense. As such, Sprint proposes that no indirect cost should be treated as avoided. Sprint Brief at 78-79.

388. All other parties utilize direct expenses or costs in their denominators. Public Counsel believes that GTE's approach, which uses total operating expense in the denominator, would result in a smaller portion of indirect cost being treated as avoided than if direct costs appeared in the denominator. Public Counsel points out that while there are inconsistencies in the FCC order, this Commission should decide which method is the most appropriate. Public Counsel Brief at 44.

389. AT&T/MCI and Commission Staff concur that GTE's method is inappropriate and would understate the avoidable costs. AT&T/MCI at 76-77; Commission Staff at 44.

### 5. Capital Costs

390. U S WEST proposes that the calculation of avoided costs be based upon total costs, not just expenses. The Company argues that capital costs, which include return and federal income taxes, are part of the total revenue requirement and, therefore, should be included in the calculation. The indirect costs portion of the operation are incurred to deal with capital investment as well as current operating expense functions. Public Counsel also utilizes the total cost approach. U S WEST Brief at 84; Exh. 152 at 13-14.

391. AT&T also attempts to measure avoidable capital costs. However, their calculation of the indirect ratio does not include capital costs. AT&T's model treats a certain portion of the net investment as avoidable indirect costs. This level is based upon the degree of avoidable direct expenses in proportion to total direct expenses. Exh. 169, JSD 1-4.

392. Commission Staff does not include capital costs in their calculation.

393. The Commission finds that it is appropriate to include indirect costs in the calculation of total avoided cost. As noted by the FCC, "[e]xpenses recorded in these accounts are tied to the overall level of operations in which an incumbent LEC engages. Because the advent of wholesale operations will reduce the overall level of operations . . . overhead and support expenses are in part avoided." The Commission agrees with the FCC's statement that indirect costs should be assumed to be avoided in proportion to direct costs. FCC Interconnection Order at ¶918. In order to achieve this proportionality, the Commission concurs with Public Counsel and U S WEST that avoided direct costs should be divided by total direct costs in order to determine this ratio. We reject GTE's position because it leads to an understatement of the indirect costs that are avoidable in a wholesale environment.

394. With respect to the issue whether to include capital costs in the calculation, we note that the inclusion or exclusion of capital costs has offsetting effects. Generally, direct capital costs have a lesser amount of their total costs avoidable than do direct expenses. Therefore, inclusion of direct capital costs in the calculation would decrease the ratio of direct avoided costs to total direct costs which is applied to indirect costs. On the other hand, there are substantial indirect capital costs, and including these costs in the calculation increases the avoided indirect costs. Regardless of the impact, the more important issue is whether inclusion of capital costs raises our confidence in the estimation of the avoided cost factor.

395. U S WEST properly indicates that the revenue requirement is made up of operating and capital costs. U S WEST Brief at 84. Unfortunately, little else is said about this matter by the other parties. The Commission finds nothing in the evidence of record which persuades us not to include capital costs. Moreover, a review of that

record informs us that Public Counsel and U S WEST have very similar levels of direct and indirect capital costs. Exh. 152; Exh. 198. Hence, the Commission adopts the use of capital costs that recognize the rate-of-return and capital structure for GTE and U S WEST that have been authorized by the Commission.

### 6. Avoided Uncollectible Expense

396. Uncollectibles are discussed by the parties as either direct costs or indirect costs, an unimportant distinction as uncollectibles are not used to determine the portion of indirect costs that should be treated as avoided. Generally, uncollectibles are treated independently from the other costs, whether direct or indirect.

397. U S WEST and GTE state that the change from a retail to a wholesale environment would not eliminate uncollectibles. Both companies estimate the portion of uncollectibles they believe will remain in a wholesale environment. The remainder of their uncollectibles are considered to be avoidable. U S WEST Brief at 80; GTE Brief at 86.

398. Commission Staff accepts the determination of uncollectibles identified by GTE and U S WEST. Exh. C-148; Exh. C-149.

399. Public Counsel terms AT&T's estimation of uncollectibles as 100% avoidable as unreasonable, identifying situations in which wholesale customer accounts have been uncollectible. Public Counsel believes that no one has enough experience to analyze this subject at this time, preferring instead to use the FCC's method of using an indirect ratio for measuring the level of avoidable uncollectible expense. Public Counsel Brief at 38.

400. AT&T argues that only a reseller will have uncollectibles associated with the retail customer. They also claim the ILECs will not experience uncollectibles associated with sales to AT&T. AT&T Brief at 76.

401. We do not agree with AT&T. Wholesale customers have generated in uncollectible revenues for ILECs; to assume that resellers will not create bad debts for the ILECs is unreasonable. We agree with the ILECs' approach to measuring the level of bad debts of wholesale customers versus retail customers, and treat the difference as avoided cost.

### 7. Discount Rate Calculation Denominator

402. After total avoided costs are determined, a denominator must be established in order to calculate the discount rate for avoided costs. Much of the previous discussion will inform our determination of the denominator. We use intrastate data, which excludes OS/DA and nonrecurring charges and costs. We also exclude Intrastate wholesale activities, such as access charges. The Commission also accepts the removal of other miscellaneous items included in Commission Staff's calculation of "intrastate retail." Exh. 147 at 3; Exhs. C-148 and 149. Finally, it left for us to determine whether the total affected revenues subject to resale or total costs should be used as the denominator.

403. U S WEST contends that the use of revenues is only a proxy method and is ill-suited to product specific discounts. Further, that the use of total costs would eliminate several issues, such as allocations and subsidies, which are raised by using revenues. The Company claims that the only accurate use of revenues is when total costs for a group of products is exactly equal to the revenues for the same products. U S WEST argues strongly against MCI's original proposition that only operating expenses appear in the denominator, contending that use of expenses, which are only a subset of total costs, unfairly increases the discount rate. U S WEST Brief at 71.

404. Sprint, GTE, Commission Staff, Public Counsel, and AT&T/MCI all support the use of revenues in the denominator. Commission Staff states that the discrepancy between costs and revenues is substantial. Staff believes the avoided cost study should not be used to cure any rate deficiency the ILECs may be incurring. AT&T/MCI indicate that the Act requires the discount rate to be the retail rate, less avoided costs. Thus, the use of costs would distort the discount rate causing it to be either too high or too low, depending upon whether costs were greater or less than revenues. Public Counsel endorses the positions advocated by Commission Staff and AT&T. Commission Staff Brief at 39-42; AT&T/MCI Brief at 70-71; Public Counsel Brief at 32-33.

405. The Commission adopts the recommendation of Commission Staff regarding the use of revenues in the denominator. U S WEST's position that total costs should be used has some appeal, in that the current rates may represent regulatory lag. Further, we think U S WEST may be correct that, on a theoretical basis, revenues should ultimately be set to equal total costs. However, this assumes that the costs included in the study are the basis for setting rates. As Commission Staff points out, the revenues and the total costs in the U S WEST study are not equal -- the costs greatly exceed the revenues on both a total intrastate basis and a retail intrastate basis. There is no indication that the costs included in U S WEST's avoided cost study are consistent with the methods for determining costs which we established in the Company's 1995 general rate increase case. For example, it is not clear if U S WEST has yet made the appropriate adjustment for *Yellow Pages*. However, the data indicates clearly that the

revenue deficiency in U S WEST's study is substantial. Exh. 197; Exh. 198. Compare that reported revenue deficiency with U S WEST's two recent general rate increase proceedings, which used test periods just prior and just subsequent to the test period for its avoided cost study in this proceeding, where the Commission's Orders resulted in a net decrease in the Company's Washington intrastate revenue requirement. Furthermore, the Commission agrees with AT&T that the Act requires that the discount rate be the retail rate, less avoided costs.

### F. Summary of Avoided Costs Analysis

406. The Commission findings on avoided costs from the preceding paragraphs are summarized as follows. All retail telecommunications services, including discounted products and deregulated services, are subject to resale. This does not include enhanced services or wholesale services. Embedded costs should be utilized in avoided cost studies. The data relied upon should be separated, intrastate data. The use of proprietary information should be held to a minimum and should only be used when to do otherwise would produce an unreasonable result.

407. OS/DA services and nonrecurring charges are retail products that are subject to resale. The Commission finds it appropriate to establish separate discounts for each of these services, and orders GTE and U S WEST to file studies of these services consistent with this order. With respect to all other intrastate retail services, only one wholesale discount rate is determined. The nonrecurring costs in excess of the nonrecurring revenues will be treated as direct, 100% avoidable costs for all other services.

408. The Commission's review of direct, avoidable costs indicates that Commission Staff's estimates of the ratio of avoidable costs for product management, sales, and product advertising are appropriate. With respect to customer services, the Commission also finds Commission Staff's ratio to be reasonable, except that the customer service costs related to nonrecurring charges in excess of revenue are 100% avoidable. The Commission finds it unnecessary to treat a portion of U S WEST's directory assistance cost in the call completion account as direct avoidable costs. Otherwise, we adopt Commission Staff's presentation on call completion and number service. Finally, the Commission does not find any testing or plant administration cost to be avoidable.

409. The Commission agrees with the FCC's determination that indirect costs should be treated as avoidable in proportion to the avoidable portion of direct costs. To determine this portion of avoided costs, the Commission believes that total direct avoided costs should be divided by total direct costs, which includes capital costs. This ratio should be applied to all indirect costs, including capital costs, in order to determine the amount of indirect avoided costs. The recommendations of U S WEST and GTE concerning uncollectibles is appropriate.

410. To establish the wholesale discount rate, direct and indirect costs and uncollectibles should be divided by revenues. Applying the above findings, the Commission calculates a wholesale discount rate for U S WEST of 14.69% (see *Proprietary Appendix A* to this Order[41]). This calculation is based upon the capital costs in Commission Staff's study. It assumes that these capital costs are consistent with our finding that the latest authorized capital structure and rate-of-return should be utilized. If this assumption is wrong, this rate would have to be modified. The Commission is unable to calculate GTE's general wholesale discount rate in a manner consistent with these findings, and, thus, orders GTE to submit a cost study consistent with the letter and spirit of our findings in this section of the Order no later than ten days after the date of this Order.

## IX. COLLOCATION

411. The evidence of record contains little discussion of the collocation studies submitted by the ILECs. TCG/NextLink Brief at 28; GTE Brief at 97-98.

412. The FCC has issued an order following review of the rates, terms, and conditions for physical collocation contained in tariffs that ILECs were required to file prior to passage of the Act. *In re Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection Through Physical Collocation for Special Access and Switched Transport*, Second Report and Order, CC Docket 93-162 (June 13, 1997) (Physical Collocation Order). The FCC ordered that certain revisions must be made to the ILECs collocation studies.

413. During evidentiary hearings in this proceeding, U S WEST witness Reynolds indicated that while he was aware of the Physical Collocation Order, he had not evaluated how the FCC's conclusions would impact the studies submitted in this proceeding. Tr. 1844-85.

414. GTE's cost witness was not cross-examined about the extent to which its studies were consistent with the FCC's findings in the Physical Collocation Order. The Physical Collection Order applies to GTE, as it does to U S WEST.

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[41] The calculation supporting the determination of U S WEST's general wholesale discount includes data designated confidential by the Company. The Appendix is available only to parties to this proceeding who have executed the requisite confidentiality agreement.

415. TCG/NextLink notes that U S WEST has raised the possibility that it would allow CLECs to self-provision some facilities. If self-provisioning was available to CLECs, the availablity of an alternative supplier would constrain the ability of the ILECs to charge unreasonable prices. TCG/NextLink proposes that the Commission establish a separate proceeding to consider self-provisioning and to allow a more complete evaluation of the collocation cost studies. TCG/NextLink Brief at 29-31.

416. We will not establish a separate proceeding to reconsider collocation costing issues at this time. TCG/NextLink had the opportunity in this case to evaluate the ILECs' cost studies. Their decision not to introduce more extensive evidence on the reasonableness of the studies is not grounds for opening a new proceeding.

417. On the other hand, we do believe there is merit in evaluating the degree to which the cost studies submitted in this proceeding comply with the findings of the FCC's Physical Collocation Order. Therefore, we will require GTE and U S WEST to submit testimony in Phase II of this proceeding regarding the degree to which their studies comply and are consistent with the Physical Collocation Order (including, but not limited to, U S WEST's EICT recurring cost study). To the extent that the studies are not consistent, we will require GTE and U S WEST to modify the studies to be in compliance with the FCC's Order. In their testimony on the collocation studies, the ILECs are free to address the reasonableness of the modifications that may be required pursuant to the FCC's Order.

418. The other parties will have the opportunity to file responsive testimony on the ILECs' submissions.

419. TCG/NextLink proposes that the Commission require U S WEST and GTE to self-provision collocation facilities and/or to solicit bids from outside contractors for site preparation work that the ILECs can either match or allow the contractor to perform. TCG/NextLink Brief at 31. We believe that this is a pricing issue that the parties should address during Phase II of this proceeding.

## X. LOCAL NUMBER PORTABILITY

420. Local number portability, or service provider number portability (SPNP), refers to the arrangements provided to a CLEC that permits local exchange customers to change service providers and retain their existing telephone numbers.

421. In this proceeding, only "interim" local number portability is at issue. WITA Brief at 27.

422. Public Counsel argues that U S WEST's cost study is flawed. U S WEST reports that the cost of providing interim number portability to CLECs is greater than the cost to provide the service to retail customers. According to Public Counsel, one reason that U S WEST's claimed cost for remote call forwarding (the interim provisioning of number portability) when provided to a CLEC is so high is because the Company assumes that the majority of the customers who would be using number portability would be business "PBX" lines. Since PBX usage is higher than that of a typical customer, this raises the estimated cost of providing interim number portability. Public Counsel Brief at 48-49.

423. U S WEST's cost study indicates that the Company's usage forecast presumes that no residential customers will be served by the CLECs. Exh. C-115, Service Provider Number Portability, October 1996, Executive Summary, at 2.

424. It is not possible to determine if GTE made a similar assumption because its documentation, relative to that supplied by U S WEST, is inadequate. See, for example, Bates Stamp 000615, 00617, 001028-001053.

425. Based upon the prescribed depreciation rates, U S WEST found that the monthly TELRIC for interim local number portability is $5.80 if transport is required, and $3.77 without transport. The cost estimate includes the recovery of non-traffic sensitive costs. Exh. C-115, Service Provider Number Portability, October 1996, Executive Summary at 8, and Cost Summary at 5.

426. We do not accept U S WEST's study for three reasons. First, as argued by Public Counsel, the assumption that remote call forwarding will be used largely by high-usage business customers is inconsistent with the customer mix they assumed when calculating the unbundled loop cost. For the unbundled loop cost, the mix of customers used was the existing loops in service, excluding Centrex lines. Exh. 152 at 51. Second, for a clearly traffic-related function, we are skeptical of the finding that a portion of the reported costs are non-traffic sensitive.[42] And, finally, the results are simply unreasonable. As pointed out by Public Counsel, the wholesale rate for remote call forwarding is a multiple of the Company's estimate of the cost of providing remote call forwarding to end users. Public Counsel Brief at 47.

427. U S WEST apparently disputes this point, by claiming that its retail rate for remote call forwarding is greater than the cost estimate for interim number portability: "As a point of validation, these retail charges establish the reasonableness of the [interim number portability cost estimate]." U S WEST Brief at 97.

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[42] U S WEST states that it includes non-traffic sensitive costs due to the design of the Lucent switch. The documentation makes no mention of the Nortel switches. Furthermore, we are skeptical that the technological limitation described by U S WEST cannot be circumvented through a modification to the software code. Exh. C-115, Service Provider Number Portability, October 1996, at 3.

428. Most of U S WEST's proposed UNE NRC charges fail the validation test it proposes for interim local number portability. Indeed, earlier in its post-hearing brief, U S WEST stated that retail NRCs are not appropriate proxies for UNE NRCs. *Id.* at 93. We find it paradoxical that U S WEST rationalizes the reasonableness of its interim local number portability cost estimate by making reference to its retail rate, while simultaneously arguing against a similar test elsewhere.

429. Furthermore, the issue raised by Public Counsel is not the relationship between the cost estimate for interim local number portability and the retail rate. Rather, Public Counsel points out that the cost estimate for interim local number portability greatly exceeds the cost estimate for the comparable retail service. There is no explanation by U S WEST for this anomaly.

430. Neither do we accept GTE's cost study for interim local number portability. The documentation of this study is inadequate; therefore, it is not possible to evaluate how the cost estimates were derived.

431. Furthermore, as with the U S WEST cost study, the GTE study exhibits the same peculiar relationship between the estimated cost of retail service and interim local number portability. The estimated cost of interim local number portability is a multiple of the cost identified for the retail remote call forwarding service. Exh. 65, WATELRIC.WK4, folder UNE Sum, and folder MiscFeatSum, line 26. Further, it appears that GTE has included the cost of calls that go into and out of its central office. Exh. 65, WATELRIC.WK4, folder INP. This assumption appears to be inconsistent with the methodology used to estimate the cost of the retail remote call forwarding service. Exh. 65, WATELRIC.WK4, folder MiscFeatSum, lines 53, 62-67.

432. The Hatfield Model assumes that the cost of providing interim local number portability is $0.25 per month. BCPM does not provide a cost estimate for this function.

433. AT&T says that the Commission should handle interim local number portability on a bill-and-keep basis or on relative market share. AT&T Brief at 86.

434. TCG/NextLink expresses their concern that the ILECs' cost studies allocate the entire cost of interim local number portability to the CLECs. They state that this procedure violates the standards established by the FCC in its local number portability decision. TCG/NextLink Brief at 32.

435. In Phase I, parties have provided their estimates of the cost of providing interim local number portability. The method used to recover these costs is a pricing issue, not a costing matter, which the parties can address in Phase II. Therefore, the proposal made by AT&T/MCI and TCG/NextLink is more properly considered in Phase II of this proceeding.

436. We will use $1.50 as the cost of providing interim number portability. This cost is based upon our consideration of the different cost estimates provided for interim number portability by the ILECs and by the Hatfield Model, as well as the cost of providing retail remote call forwarding.

## XI. INTERCONNECTION/TRANSPORT AND TERMINATION

437. AT&T urges the Commission to maintain our prior finding in the Interconnection cases that bill-and-keep should be used for transport and termination. If the Commission decides to change its policy, AT&T recommends that the Hatfield Model be used to estimate the cost of common, dedicated, and direct transport. AT&T Brief at 87-8.

438. TCG/NextLink concurs that bill-and-keep should be maintained for the pricing of transport. TCG/NextLink Brief at 34.

439. U S WEST has submitted a cost study for transport. In its post-hearing brief, it does not concur with the other parties' advocacy for maintaining bill-and-keep compensation for transport. U S WEST Brief at 97-98.

440. GTE raises a number of objections to the Hatfield Model's calculation of inter-office facilities, including the models effective route-to-air mile ratio. Exh. 53 at 23-27. AT&T/MCI do not address GTE's criticisms regarding the Hatfield Model's route-to-air mile ratios. Due to our concern regarding the calculation of this value in the model, we do not believe that the Hatfield Model should be used to calculate inter-office costs.

441. AT&T/MCI witness Zepp criticizes three of the inputs to the U S WEST Transport Model. Exh. 162 at 39-40. Mr. Zepp claims that the fill rate in the study is too low, but he offers no testimony regarding the fill levels incurred by an efficient firm. He then asserts that the modeling of rings does not sufficiently reflect forward-looking technology, and, finally, that route-to-air miles are not correctly calculated. With regard to these last two criticisms, we find that his points are not sufficiently developed in the record.

442. No party critiqued the GTE transport study.

443. Currently, transport compensation is handled through a bill-and-keep procedure. Under the bill-and-keep arrangement, there is no need to quantify the cost of transport. In Phase II of this proceeding, the parties may propose alternative compensation methods. If we adopt an alternative method in Phase II, at that time we will require GTE and U S WEST to modify, and to re-submit for verification, their studies to reflect the cost of money and depreciation lives we adopt in this Order. If we adopt bill-and-keep compensation, there will be no need to re-do the studies.

## XII. NONRECURRING COSTS

444. Nonrecurring costs historically are classified as costs incurred in initially establishing service for an individual customer. They are transaction related. Costs incurred to set up a customer's service typically include customer service expenses and, depending on the service, the cost of physically connecting a customer to the network. Commission Staff notes that today, in some cases, the establishment of service can be accomplished from a computer work station, without physical rearrangement of the facilities necessary to serve the customer. Nonrecurring costs are typically recovered, at least primarily, through nonrecurring charges, which the customer pays at the time that service is initiated. Commission Staff Brief at 51.

445. AT&T/MCI contend that the Hatfield Model reflects both recurring and nonrecurring expenses through the inclusion of annual charge factors developed from publicly available 1995 ARMIS data. Hence, they assert that the non-recurring costs are already recovered through their proposed recurring rates. AT&T/MCI Brief at 80-81.

446. GTE and U S WEST disagree. They point out that the 1995 ARMIS data do not cover the cost of providing UNEs and, therefore, this cost is not included in the Hatfield Model's study. GTE Brief at 94; U S WEST Brief at 86.

447. Commission Staff notes that, even if transaction costs are captured by the Hatfield Model, these costs should not be included in the cost estimates of unbundled network elements. Instead, nonrecurring costs should be explicitly identified in a separate study. Commission Staff Brief at 54.

448. We concur with U S WEST and GTE that the Hatfield Model does not adequately estimate nonrecurring costs, because the costs were not part of the ILECs' cost structure in 1995. Furthermore, even if they were, the Hatfield Model's methodology is inappropriate. The model estimates expenses by multiplying the current investment by the historical relationship between expenses and investment. Whereas the model estimates that the current investment in a network is less than the embedded investment, it effectively predicts a reduction in maintenance expenses. While cost reductions are likely to occur, the sponsors have not made a compelling argument that the model accurately estimates the forward-looking maintenance costs.

449. The attractive part of the method used by the Hatfield Model for estimating nonrecurring costs is that the study relies on data that are in the public domain. Since the data are flawed, we believe that there is a need to substitute other information for the ARMIS data.

450. The RBOC studies do not use data that are in the public domain. Rather, U S WEST and GTE provide time estimates from their subject matter experts.

451. The Commission is concerned that these time estimates may be biased upward. As the ILECs are the sole providers unbundled network elements, we are concerned that their estimated costs may be too high. We asked the parties to address our concern. Specifically, we posed this question to the parties: "Can the ILECs' NRC studies be validated?"

452. Throughout this proceeding, GTE repeatedly has emphasized the need to validate the reasonableness of expert opinion. On page four of its post-hearing brief, GTE states:

> This Commission should recognize -- and apply -- the legal standards relevant to the admission of expert testimony. The Hatfield Model at issue in this proceeding is based upon a set of theoretical and hypothetical assumptions, often supported by the opinion of the sponsors -- and little else. In *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 113 S.Ct. 2786 (1993), the U.S. Supreme Court focused on the methodology used by experts to arrive at their conclusions, and emphasized the responsibility of the courts to insure that the proffered evidence is valid and has been tested. *Id.* at 2796. Expert opinions which have not been validated should not be considered. This Commission is duty bound to determine whether the proponent of the particular cost model has carried its burden of demonstrating that the underlying methodology has been validated. *Id.* at 2795. *See* Berger, "Evidentiary Framework," *Federal Judicial Center Manual on Scientific Evidence* (1994).
>
>> *[I]f an opinion is fundamentally unsupported, then it offers no expert assistance to the jury; and the lack of reliable support can render an opinion substantially more prejudicial than probative, making it inadmissible under Rule 403.*
>
> *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1120 (5th Cir. 1991) *en banc, cert. denied*, 112 S. Ct. 1280 (1992). *See also*, *Richardson v. Richardson-Merrell, Inc.*, 823 F.2d 829 (D.C. Cir. 1988).

453. In response to the Commission's question as to how the opinion of GTE's experts could be validated, the Company offers us no testimony. Instead, GTE postulates that ***its opinion is valid*** "because it is based on the actual GTE-specific costs that arise from the system that is in place today to process a CLEC's LSRs [local service requests]." GTE Brief at 95.

454. U S WEST, in response to the same question, suggests that validation of the nonrecurring cost numbers may not be possible. U S WEST Brief at 90.

455. U S WEST adds:

> [T]here may be a temptation to validate the NRC studies for elements against the existing NRCs for services. This may be possible, but should be done with caution, recognizing the difference between elements and services, and understanding that the parallels may only be rough. One example of this is the parallel between unbundled loops and private lines. U S WEST has explained that provisioning a loop is more like provisioning a private line, with similar nonrecurring activities. The nonrecurring retail rates associated with private line service are higher than those calculated for unbundled loops. To the extent that these nonrecurring charges can be used to validate the non-recurring costs, they do so and establish that U S WEST's nonrecurring costs for UNEs are reasonable.

*Id.*

456. The Commission is satisfied that we have met GTE's proposed standard, because of our active participation in the evidentiary hearings in this proceeding. The transcript reflects pertinent and substantial cross-examination by the bench of virtually every subject matter expert who appeared in support of the cost models sponsored by the parties. The bench challenged these experts on their qualitative methodological approach to modeling, and on the quantitative assumptions, inputs, and values posited by these witnesses. We are confident that the findings we make in this Order are supported by the evidence of record and are informed by our questions of these witnesses. We found the developers of the Hatfield Model to be especially open in their dialogue with the bench in that they were both direct and comprehensive in their responses; the developers of the BCPM [model] also were forthcoming in their responses to our questions. We also acknowledge that some expert witnesses presented by other parties were of assistance to us in understanding their positions.

457. U S WEST argues that the provisioning of an unbundled loop is more like provisioning a private line than an ordinary voice line. U S WEST Brief at 90-93. Unbundled loops, unlike the loop used for retail voice service, do not connect to the ILEC's switch. U S WEST points out that the unbundled loop "requires a meet point to a CLEC's collocated equipment, and, as such, end points of the circuit must be identified. This requires use of the "common facility arrangement capabilities" associated with private line services. Exh. 117 at 62.

458. Commission Staff, AT&T/MCI, and TCG/NextLink dispute that an unbundled loop is similar to a private line loop. Commission Staff Brief at 53; TCG/NextLink Brief at 27; Exh. 157.

459. TCG/NextLink points out that some ILEC's cost estimates are discriminatory because wholesale rates would likely exceed the retail rate. TCG/NextLink Brief at 25-26.

460. We disagree with the suggestion that the retail nonrecurring charge associated with a private line loop could be used as the basis for comparison with the proposed nonrecurring cost for an unbundled loop. The unbundled loop may connect to the CLEC's collocated equipment, rather than the ILEC's switch, because the ILEC may not want to provide the CLECs with the bundled loops and switch network elements it requests. The bundling of the loop and port is an issue in dispute between the CLECs and the ILECs, though the Commission is of the opinion that the ILECs are obligated to provide bundled network elements. Pending ultimate resolution of this legal issue, we will address in this proceeding how to cost the unbundling of bundled network elements.

461. Should our view that the ILECs are required to offer bundling of the loop and port be rejected, we believe that in the pricing phase of this case, the parties should address how the cost of separating the loop and the switch should be recovered. One of the objectives of the Act is to promote the development of efficient competition. There is a body of economic literature which suggests that efficiency losses can occur when a dominant incumbent firm raises the cost of its rivals.[43] We order the parties to address the appropriateness of having new entrants pay for costs that are due to potential network inefficiencies associated with unbundling the port and the switch. Specifically, the parties must address the question whether the cost causer for the connection to the collocation cage is the CLEC, because it is ordering the network element(s), or is it the ILEC, because it will not on its own bundle the network elements?

462. Of course there are instances when a CLEC, even if it could order a bundled loop and port, would obtain only the loop. In this circumstance, we find the costs identified by U S WEST to be unreasonable. The Company's "unbundled loop nonrecurring study does not reflect any new mechanization of the ordering process at this time." Exh. 117 at 63.

463. We believe that this is an unreasonable starting point. U S WEST witness Reynolds testified that, as an outgrowth of discussions with AT&T, U S WEST talked to its vendors and identified a less expensive way of grooming loops that are destined for the CLEC collocation cage. This alternative process significantly reduced the recurring cost of grooming. Tr. 1925-26. We believe that, if a similar effort is made to identify potential cost savings for nonrecurring activities, other efficiency gains can be identified.

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[43] See, for example, S. Salop, and D. Scheffman, (1983), "Raising Rivals' Costs, American Economic Review - Papers and Proceedings, 267-271.

464. Our conclusion is based, in part, on U S WEST's reliance on cost data estimates that were developed in the late-1980s and early-1990s. Tr. 2090-91. We believe that it is more than likely that there have been major efficiency gains in the ensuing years and we are not convinced that they are reflected in the U S WEST study.

465. Neither do we accept U S WEST's assertion that the cost of connecting an unbundled loop is similar to the cost of a private line. Private line circuits are often used for high-speed data services and, therefore, their engineering requirements are significantly different than those loops that are used for ordinary voice communications. See, for example, Exh. 48, "Digital Special Access Lines." Some slower speed private line services might require special balancing that is not required for an ordinary voice circuit.

466. U S WEST states in its post-hearing brief that its time estimates are reasonable and have been "revised and updated as necessary." It adds that "U S WEST recently modified the time estimates in one of these studies to reflect a six minute requirement as opposed to the previous 45 minutes." U S WEST Brief at 92, citing Tr. 2068.

467. The transcript shows that U S WEST claimed that it had updated its Local Interconnection Service (LIS) Link Study in December 1997. The Company's cost witness, Ms. Santos-Rach, stated that the revised study reflected six minutes of work at the interconnection service center.[44] The prior study indicated 45 minutes of work effort. Tr. 1987-88, 2068.

468. The December 1996 Study still reflects the 45 minute time period for the first link ordered. LIS-LINK 2 Wire/4 Wire Nonrecurring Cost Study, December 1996, at 1 of 32. We have modified the study to reflect the six minute time period.[45]

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[44] See U S WEST's Response to BCH 02-007 for a description of the work function performed at the interconnection service center (ISC).

[45] In the December 1996 study, U S WEST included only six minutes of ISC work time for additional orders. But this is six minutes more than was included for a connection in the prior study. Therefore, contrary to the suggestion of U S WEST, it is not a reduction in time. Furthermore, the use of the 45 minute period in the December 1996 study for the first link ordered is inconsistent with the testimony of U S WEST witness Santos-Rach. Tr. 1988. For both original and additional orders, the December 1996 study reports higher costs than the study filed in August 1996. Compare, Local Interconnection Service Links--1996 Nonrecurring Cost Study, August 1996, (Executive Summary at 8), at 1-6 of 19, with LIS-LINK 2 WIRE/4 WIRE 1996 Nonrecurring Cost Study, December 1996, (Executive Summary at 8), at 1-8 of 32.

469. We make two other changes to the U S WEST study. We modify the study and adopt a 15%, rather than a 45%, probability that a link order will require manual plant line assignment. We have also set the common overhead factor to zero. We believe our assessment of manual plant line assignment is more reasonable. The second change reflects our decision to address the recovery of common costs in Phase II of this proceeding. Based upon these three changes, we conclude that the nonrecurring cost of an installation is $30.15.[46]

470. U S WEST's *Executive Summary* of its nonrecurring cost study states that the study identifies "the provisioning activities involved in providing a service[.]" Included in the time estimates for the work, but not explicitly stated in the narrative, is the time involved in disconnecting an unbundled network element. U S WEST LIS-LINK 2 WIRE/4 WIRE Nonrecurring Cost Study, December 1996.

471. AT&T/MCI criticizes the bundling of disconnection and connection charges. Exh. 162 at 32-34.

472. We find U S WEST's inclusion of disconnection costs to be inappropriate, because the study does not take into account the time value of money, nor the likelihood that a UNE would be disconnected. Furthermore, the time estimates associated with the disconnection are not reasonable.[47]

473. We have modified the disconnection study to reflect that the time at the interconnection service center will be only six minutes, and, that at the central office frame, a craftsman will only require two minutes to analyze an order and will spend three minutes removing a jumper. With these changes, as well as our decision to exclude common costs, we find the cost of disconnection to be $11.58.

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[46] The calculation of this value was complicated by the fact that the electronic copy of the U S WEST NRC study excluded many links between cells.

[47] For example, U S WEST assumes that all UNEs will be disconnected and that the provisioning of the order at the service center will require 30 minutes of labor. LIS-LINK Nonrecurring Cost Study, at 2 of 32.

U S WEST noted that its study of disconnection costs did not take into account that labor rates would be going up over time. U S WEST proposed that the increase in labor costs "basically offset" the time value of money. Tr. 2090. We disagree for two reasons. First, the time value of money is significantly higher than the yearly percentage increase in wages. Second, while labor cost-per-hour may increase, there will likely be offsetting declines in unit costs due to the increased use of automated support systems. The U S WEST study assumes that the same methods used in the 1980s would be used today and in the future. Tr. 2090-91. We find this assumption to be unreasonable.

474. The parties did not address in-depth the other nonrecurring studies.[48] We will require U S WEST to modify its other nonrecurring studies in a manner consistent with our findings as fully described above. If the revised studies do not reflect both the letter and the spirit of this decision, we will make identical adjustments to the other studies according to our findings described above.[49]

475. AT&T/MCI object to the GTE nonrecurring cost (NRC) study because it was based upon the cost of providing retail services, and on manually processing orders. They add that, since GTE provided only summary numbers, and no model, it is not possible to replicate or validate the costs for which the Company requests compensation. AT&T/MCI focused most of their attention on U S WEST, because "GTE has filed virtually no supporting documentation." Exh. 157 at 5, 7; Exh. 163 at 8.

476. AT&T/MCI argue that GTE's failure to provide the model associated with its NRC study violates the Commission's requirement that cost studies be open and verifiable. They add that the lack of such information prevents anyone from commenting upon or validating the results. AT&T/MCI Brief at 83.

477. GTE argues that it is appropriate to assume a manual system and to use retail costs as a foundation for estimating the cost of providing service to wholesale customers. GTE Brief at 93.

478. The GTE NRC study identifies the work activity, work time, labor rate, and frequency of different functions. We have reviewed the study and find that many of the time estimates are unreasonable. We agree with AT&T/MCI that insufficient documentation and support have been provided for the study. Whereas the Company has not provided an electronic version of the study, we will require that it be filed and that it include the following modifications: First, as with U S WEST, we require GTE to file separate costs for connect and disconnect activities. Second, GTE must provide a narrative explanation of the activity associated with MARK, CBSS, and Line Screen, and its relation to other activities included in the model. Furthermore, the changes identified in the *Appendix* to this Order should also be incorporated into the study. The revised study must be filed with the Commission, and simultaneously served on all parties, no later than 30 days after the date of this Order.

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[48] AT&T/MCI witness Petti testified regarding concerns she has with some of the assumptions in the ILEC's NRC studies. She did not quantify, however, the impact these concerns have on the ILECs estimated costs. Exh. 156.

U S WEST indicates that it would not assess a nonrecurring charge for EICT if it was ordered at the same time that an unbundled loop is ordered. Tr. 1872.

[49] The total cost could be estimated by multiplying the ratio of U S WEST's estimated costs by 36% [1 - (11.58+30.15)/116.18].

479. AT&T/MCI object to U S WEST's assumption that 33% of customer transfers would require manual intervention by U S WEST. Exh. 157 at 27-28.

480. As we state above at paragraph 41, we believe that the appropriate manual intervention rate should be addressed simultaneously with our consideration of transition costs in Phase II.

481. AT&T/MCI request that the Commission require U S WEST to include in its tariff a provision that no further nonrecurring charges will be assessed once a transport facility is in place. Exh. 157 at 32-33. This is a pricing issue that can be raised by AT&T/MCI, or other parties, during Phase II of this proceeding.

482. The cost findings in this Order do not reflect the transactional efficiencies that may be achieved through computer links between the ILECs' and CLECs' operational support systems. When these systems are in operation, we expect the ILECs to fulfill their commitment to revise their studies to reflect the associated cost savings. U S WEST Brief at 91.

## XIII. COMMISSION CONCLUSION

483. The Act requires that the price of unbundled elements be just and reasonable. In Phase I of this proceeding, we have identified the recurring and nonrecurring cost of network elements. Consistent with the statutory requirement, our these costs have been determined without engaging in a rate case. 47 U.S.C. § 252(d)(1)(A).

484. For the most important network element, the local loop, our cost determination is based upon an extensive review of four cost models and the written and oral testimony of many expert witnesses. We have evaluated both the algorithms used to make the cost calculations and the input values for the models. In reviewing the cost model algorithms, we have once again observed the need for models to be open to public review. All of the models include formulas which merit close inspection, and this process is seriously impeded when the cloak of confidentiality is applied to the model algorithms, inputs, or outputs.

485. The parties have proposed a wide range of inputs for the cost models. Our Order reflects a careful review of all the testimony and exhibits. We believe that, through this process, we have succeeded in identifying inputs and obtaining TELRIC estimates that are consistent with the principles that were identified in the introductory section of this Order.

486. We have also established a wholesale discount rates for U S WEST, and require GTE to file an avoided cost study consistent with our Order. These are rates which will be consistent with the §251(c)(4) requirement that retail services be made available to CLECs at a discount which reflects the costs that are avoidable in a wholesale environment.

487. Having discussed above in detail both the oral and documentary evidence concerning all material matters, and having stated findings and conclusions in each numbered paragraph, the Commission now augments those findings and conclusions with the following general statements on the evidence of record. Those portions of the preceding detailed findings and conclusions pertaining to the ultimate decisions of the Commission are here incorporated by this reference.

## XIV. FINDINGS OF FACT

488. The Washington Utilities and Transportation Commission is an agency of the state of Washington, vested by statute with authority to regulate rates, rules, regulations, practices, accounts, securities, and transfers of public service companies, including telecommunications companies.

489. U S WEST Communications, Inc., and GTE Northwest Incorporated are each engaged in the business of furnishing telecommunications service within the state of Washington as a public service company.

490. The purpose of Phase I of this proceeding is to establish costing procedures and cost levels for unbundled network elements, including the loop, switching (port, usage, and vertical features); interconnection; transport and termination; physical and virtual collocation; nonrecurring activities; resale of telecommunications services; and interim local number portability.

491. The costs established by this Order will serve as price floors for network elements, with certain exceptions, *e.g.*, interim local number portability, where the cost will serve as the price floor. Phase II will focus on the extent to which there should be uniform or variable "mark-ups" over the price floor for different network elements.

492. The costs established in Phase I should be premised upon open, reliable, and economically sound cost models and cost inputs which provide the opportunity to review both the compiled and uncompiled source codes; document the input values; include a narrative description of the models' operation; and permit modification and sensitivity analysis.

493. The computerized analytical models sponsored in this proceeding are economic cost models designed or used to measure the costs that would be incurred to reconstruct the network under certain specified conditions, *e.g.*, the "scorched node" assumption, and to disaggregate the otherwise undifferentiated costs of the network into various cost elements.

494. The parties sponsored models, such as those developed by Bellcore, that are largely closed and subject to restrictions on access imposed by the developer. Other models, notably the Hatfield Model and the Benchmark Cost Proxy Models, are relatively open, although both use data not in the public domain. All of the models are going through an evolutionary process at this time.

495. Incumbent local exchange companies may be entitled to some compensation for certain expenditures made to comply with the Telecommunications Act of 1996, which we label "transition costs".

496. The Commission finds it is not appropriate to deaverage costs for unbundled network elements and interconnection in this proceeding.

497. The sponsored loop cost models can be used in Phase I of this proceeding to establish a range of reasonable costs. The Commission should make the modifications to the assumptions and inputs for the four loop cost models sponsored in this proceeding as described in *Appendix B*, attached and incorporated into this Order by this reference.

498. Based upon our findings, those costs include for U S WEST-- a monthly unbundled loop cost of $17.00; a four-wire loop cost 25% greater than the two-wire loop cost; a monthly switch port cost of $1.29, and a per minute of use switch cost of $0.00115; a general wholesale discount of 14.69%; a monthly interim local number portability cost of $1.50; a nonrecurring unbundled loop installation cost of $30.15 and loop disconnection cost of $11.58; an interim 50% avoided cost discount for nonrecurring activities; and, for GTE -- a monthly unbundled loop cost of $20.00; a four-wire loop cost 25% greater than the two-wire loop cost; a monthly switch port cost of $1.29, and a per minute of use switch cost of $0.00136; a monthly interim local number portability cost of $1.50; an interim 50% avoided cost discount for nonrecurring activities.

499. The Commission is unable to calculate GTE's general wholesale discount from the model as filed.

500. A single general wholesale discount, using embedded costs and relying upon separated, intrastate data should be determined.

501. The revenue from operator service and directory assistance service should not be included in the calculation of the general wholesale discount, nor should the direct costs of these services be treated as avoided costs.

502. The revenue and costs of nonrecurring activities should not be included in the calculation of the general wholesale discount; the level of costs removed from the calculation is limited to the level of revenues removed from the calculation.

503. The Federal Communications Commission has required ILECs to file certain revisions to the companies' collocation studies.

504. The compensation for transport is currently handled through a bill-and-keep arrangement. As such, there is no need to quantify the cost of transport.

## XV. CONCLUSIONS OF LAW

Having articulated the legal basis for its decision in Memorandum section, the Commission makes the following conclusions of law.

505. The Washington Utilities and Transportation Commission has jurisdiction over the subject matter of these proceedings and the parties.

506. An open or transparent model is in the public interest in that it allows a full exploration of the advantages and limitations of a model and allows the public to evaluate all of the information which is used to set prices. None of the models sponsored in this proceeding fully meets the Commission's criteria for an open or transparent model.

507. The Commission should not adopt any of the models sponsored in Phase I of this proceeding. The models fail to satisfy our objectives that a model be open, reliable, and economically sound.

508. In future Commission proceedings, proxy model sponsors should be required to address the relationship between their cost study's average loop lengths and the ILECs actual average loop length, and the similarity in wire center counts; to document all assumptions, inputs, and values consistent with this Order; and to reflect forward-looking technology and the cost of such facilities.

509. The proper cost standard for Phase I is total element long-run incremental cost, and the cost for unbundled network elements should be based upon the cost of the total demand for the elements.

510. Transition costs, including customer transfer cost studies, should be considered in Phase II of this proceeding.

511. The deaveraging of costs should be addressed in the context of universal service, deaveraged retail prices, and inquiry into the extent of competitive activity in this state.

512. The Commission should make the modifications to the assumptions and inputs for the four loop cost models sponsored in this proceeding as described in *Appendix B*, attached and incorporated into this Order by this reference.

513. The wholesale discount should be determined by dividing direct and indirect costs and uncollectible amounts by revenues.

514. U S WEST and GTE should be permitted to file separate avoided cost discounts for operator service and directory assistance and nonrecurring activities.

515. U S WEST and GTE should be required to submit testimony in Phase II of this proceeding describing the degree to which their collocation studies filed in this matter comply and are consistent with the FCC's Physical Collocation Order, including, but not limited to, U S WEST's EICT recurring cost study.

516. GTE should be required to file a revised avoided cost study.

517. The U S WEST and GTE number portability cost studies should be rejected.

518. The parties should file proposed alternatives to the bill-and-keep arrangement for transport compensation in Phase II of this proceeding.

519. GTE should be required to file an electronic version of its nonrecurring cost studies, and to make the following modifications: 1) separate costs for connect and disconnect activities; 2) a narrative explanation of the activity of associated with MARK, CBSS, and Line Screen and their relation to other activities in the model; and 3) incorporate the changes attached as Appendix D to this Order in the cost study.

## ORDER

THE COMMISSION ORDERS:

520. The versions of the cost models sponsored in Phase I are not in the public interest, and the Commission does not adopt any cost model in this proceeding.

521. The total element long-run incremental cost standard is adopted; the cost of network elements is to be based upon the cost of the total demand for the elements.

522. The cost models should be modified consistent with the evidence of record and used to develop a range of reasonable costs with which to determine appropriate costs.

523. The parties in Phase II must address both the level of transition costs and the appropriate recovery mechanism, and the reasonableness of the proposed customer transfer cost studies.

524. U S WEST must modify its load coil unloading and bridge tap nonrecurring cost studies consistent with our findings in this Order, and file the revised studies no later than 21 days after the date of this Order.

525. The parties in Phase II must address 1) the level of common costs that is to be recovered through the price of unbundled network elements; 2) how individual prices should be determined; and 3) the need to include in the price of the loop the 20% mark-up factor proposed by Commission Staff.

526. Costs for unbundled network elements and interconnection will not be deaveraged in this proceeding.

527. The monthly cost of the unbundled loop for U S WEST is $17.00; for GTE the is $20.00.

528. The cost of a four-wire loop is 25% greater than the cost of a two-wire loop.

529. The monthly cost of the port is $1.29 for both U S WEST and GTE; the per minute cost of the switch is $0.00115 for U S WEST and $0.00136 for GTE.

530. The general wholesale discount for U S WEST is 14.69%.

531. GTE is ordered to file an avoided cost study consistent with the letter and spirit of our findings herein no later than 20 days after the date of this Order.

532. U S WEST and GTE must file, and the Commission must approve, avoided cost studies for operator service and directory assistance substantially as recommended by Commission Staff.

533. U S WEST and GTE must file, and the Commission must approve, avoided cost studies for nonrecurring activities. Until such avoided cost studies are approved, the Commission orders that a 50% avoided cost discount applies to retail nonrecurring activities.